Space Weather Forecast

Issued on Tuesday, 17 January 2023 at 13:01 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Further Minor/Moderate Radio Blackouts likely. Chance of Minor Geomagnetic Storms from day 2 (18th).

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has remained Low, with X-ray flares peaking with a common-class flare at 17/0013 UTC. This flare emanated from a sunspot in the northeast. This group was one of up to eleven on the facing side at present, though most groups are stable at the moment. No new Earth-directed Coronal Mass Ejections (CMEs) have been observed in available satellite imagery.

Solar Wind / Geomagnetic Activity: The solar wind has been at slightly elevated levels. The number of particles comprising the solar wind was average or slightly above average. The magnetic field associated with these particles was weak as was the north-south component. The net effect of the above solar wind parameters was for Quiet to Unsettled geomagnetic activity.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary
Solar Activity: Solar activity is likely to be moderate, with a daily slight chance of reaching high levels.
Solar Wind / Geomagnetic Activity: Solar winds are expected to soon revert to a slow regime, resulting in continued quiet geomagnetic activity on day 1 (Tuesday 17 January), perhaps the most reliably settled day of the forecast. Later on day 2 (Wednesday 18 January), a fast wind is expected, which may combine with the 14 January CME into Thursday 19 January, giving a likely Minor Geomagnetic Storm G1, on day 4 (20th) Earth may connect with the fast wind from another coronal hole, maintaining the chance of a minor geomagnetic storm.

Energetic Particles / Solar Radiation: Solar radiation will most likely remain at background levels, but with a slight chance of enhancements to S1 or greater through the period due to a number of magnetically complex sunspot regions on the Sun.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	50	50	40
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	70	70	70	70
Very Active	R3 to R5 X	No	10	10	10	10

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	20	20	20	20
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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